THE CRYSTALLOGRAPHY OF BUTTER AND OTHER FATS.

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PLATES I. and II.

CRYSTALLINE FORMATIONS OF BUTTER AND FATS.

Figs. 1, 2, 3 and 4. Represent primary crystals of butter, ×80 to 110.
Figs. 5 and 6. Secondary crystals forming within primary crystals.
Figs. 7 and 8. Secondary crystals which have separated from the primary forms. ×80 to 110.
Figs. 9, 10 and 11. Tertiary crystals of butter. ×80 to 140.
Fig. 12. Tertiary passing into the amorphous. ×140.
Figs. 13, 14, 15 and 16. Represent oleomargarine. ×80 to 110.
Fig. 17. Oleo, ×140. This crystal is not found in unboiled oleomargarine.
Fig. 18. Oleo in its second stage, as seen in oleomargarine as sold.
Figs. 19 and 20. Common lard. ×140 to 400.
Figs. 21, 22, 23 and 24. Crystals of beef-fat from various tissues of the ox. (Omentum, kidney, marrow of the femur, and round.)

PLATE III.

CRYSTALLINE FORMATIONS OF BUTTER.

Figs. 1, 2, 3, 6, 8, 9, 12 and 14. Primary crystals of normal butter. ×80 to 110.
Figs. 4, 7 and 10. Primary crystals showing "secondaries" forming.
Figs. 13 and 15. Secondary crystals of butter. ×80 to 140.
Figs. 5 and 11. Tertiary crystals of butter. ×80 to 140.

PLATE IV.

CRYSTALLINE FORMATIONS OF OLEO AND BUTTER.

FIGS. 1, 2, 4 and 11. Crystals of boiled oleo (Armour). ×70 to 140.

FIGS. 3, 5, 6, 7, 8 and 9. Crystals of boiled oleo in process of decay. Such forms are frequently observed in oleomargarine. ×140.

FIG. 10. The butter crystal as photographed by Detmers.

FIG. 12. A crystal of oleo and lard made by Prof. Weber, which he says cannot be distinguished from that of pure butter. (See Figs. 10 and 14.)

FIGS. 13 and 15. Crystals of boiled butterine as prepared by Prof. Weber and photographed by Prof. Detmers, representing the butter crystal according to Prof. Weber.

FIG. 14. The true butter crystal, photographed by the late Dr. Bernard Persh. Compare this plate with the transition stages of butter crystals, Plate I.

PLATE V.

CRYSTALLINE FORMATIONS OF OLEO AND OLEOMARGARINE.

FIG. 1. Boiled oleo by plain light, exhibiting spines. ×140.

FIG. 3. Boiled oleo by polarized light, showing a cross. ×140.

FIGS. 2, 4, 5, 6, 9, 11, 12, 13, 14 and 15. General appearance of oleomargarine as sold in the market. ×75 to 110.

FIG. 7. Armour's oleomorgarine boiled and cooled. ×140.

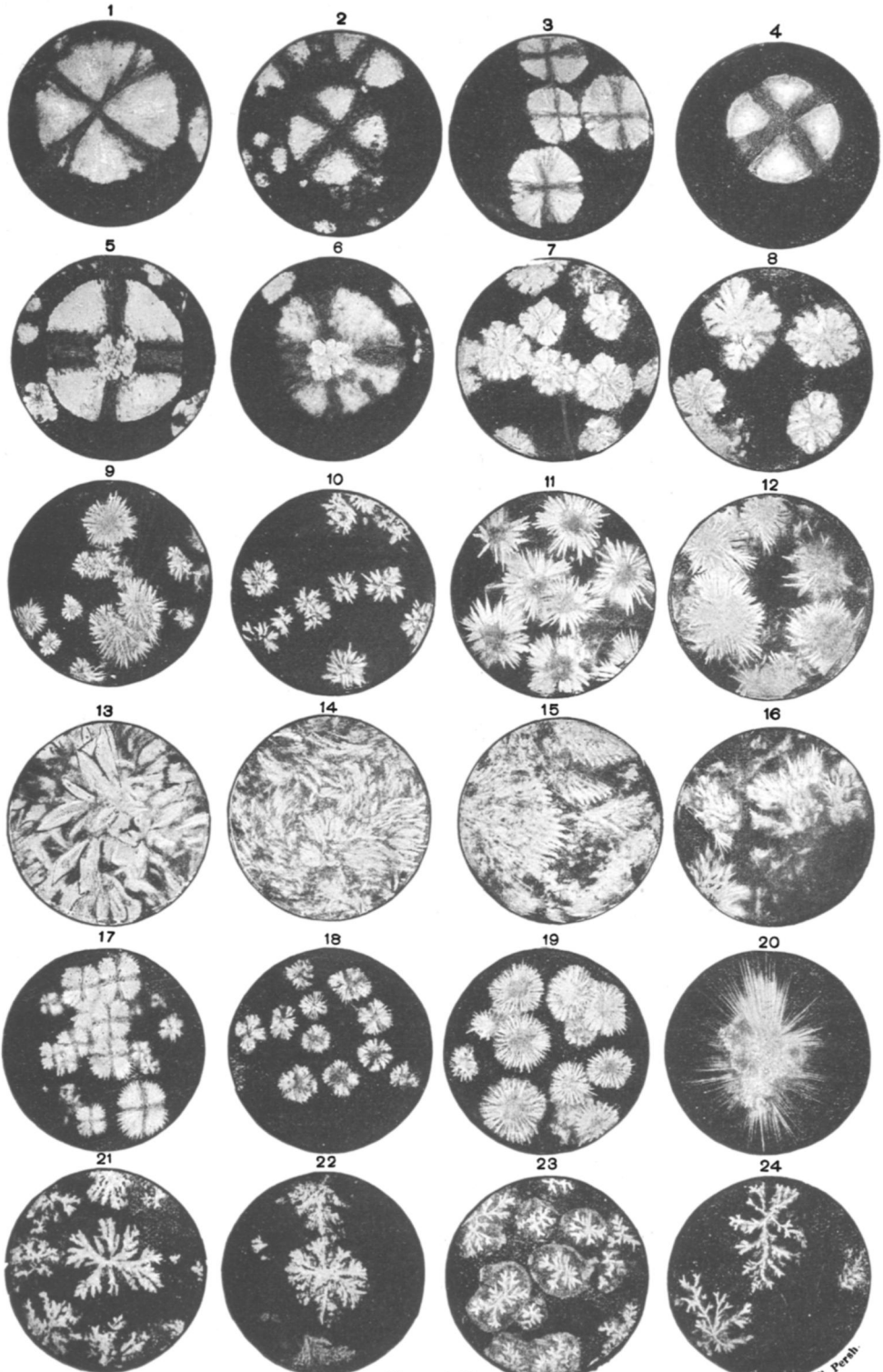
FIG. 10. A specimen of oleomargarine composed mostly of stearine and cottonseed oil. ×110.

FIG. 8. Boiled butterine (Armour's make), showing the oleo crystals.

The above crystals were all photographed by polarized light, except in the case of Fig. 1, which was by plain light.

PLATE I.

CRYSTALLINE FORMATIONS OF BUTTER AND FATS.



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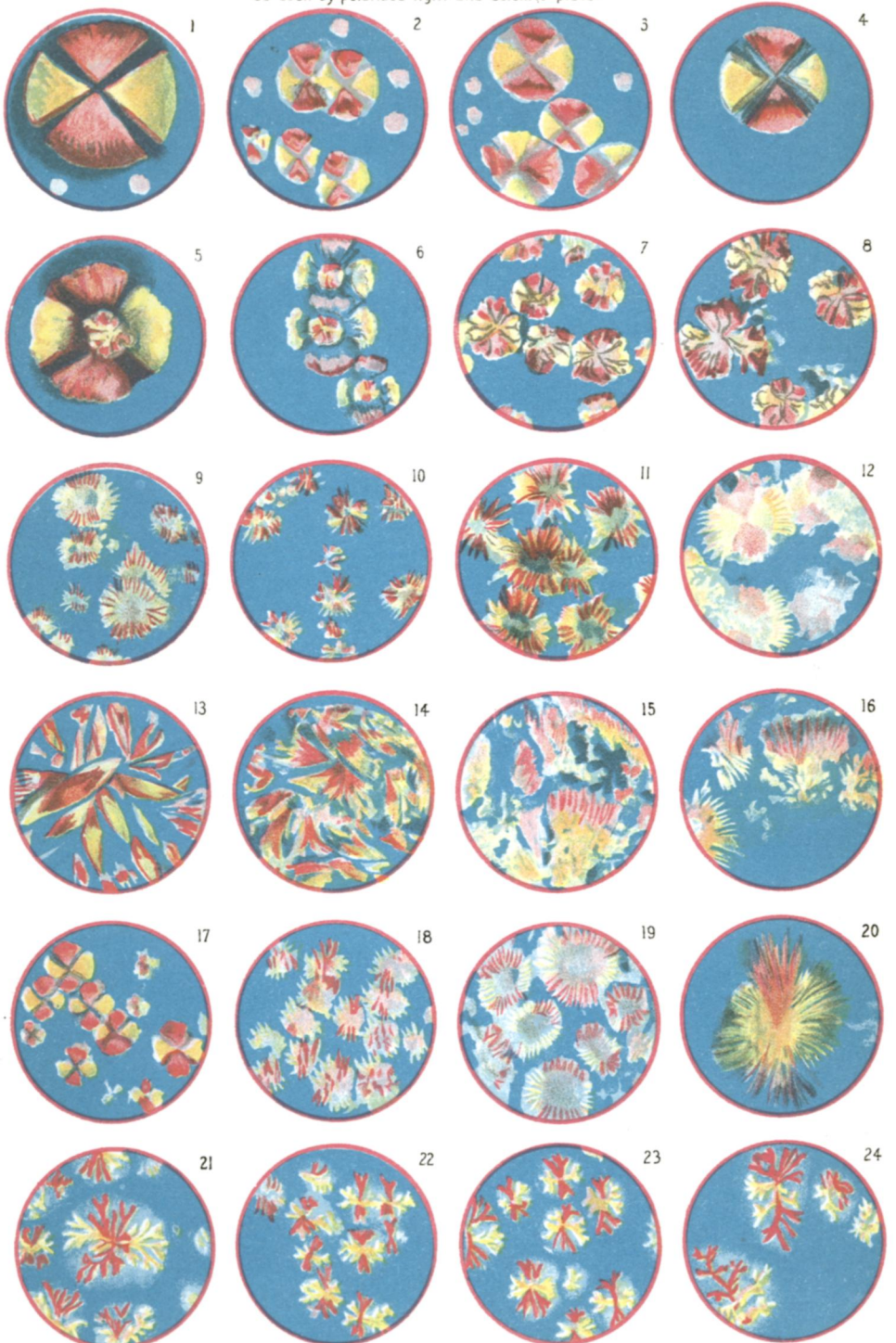
Photographed by
Persh and Gascovne.

Plate II.

CRYSTALLINE FORMATION OF BUTTER AND FAT.

as seen by polarized light and selenite plate.



T. TAYLOR, del.

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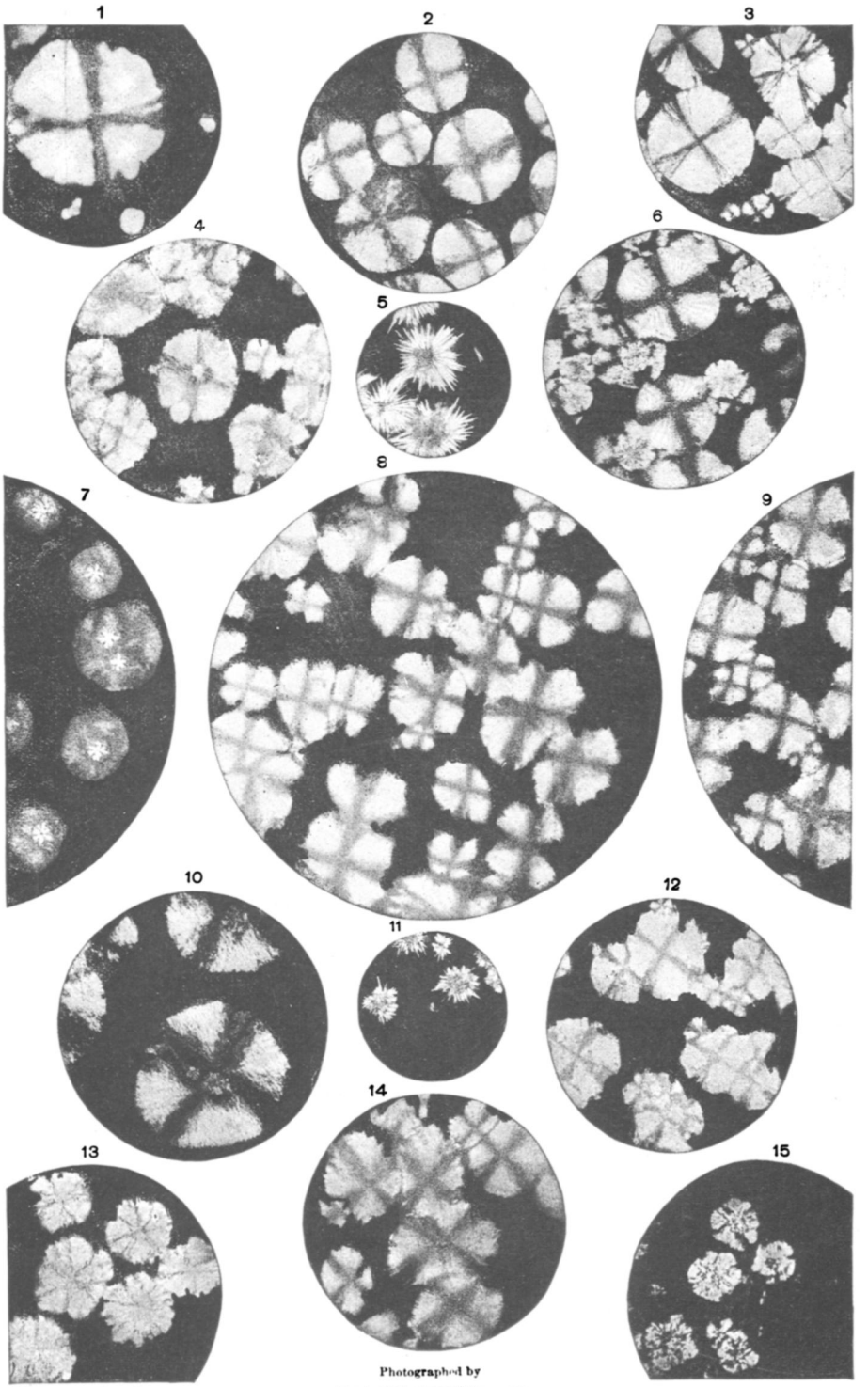
PLATE III.

CRYSTALLINE FORMATIONS OF BUTTER.



Photographed by
Persh, Walmsley and Gascoyne

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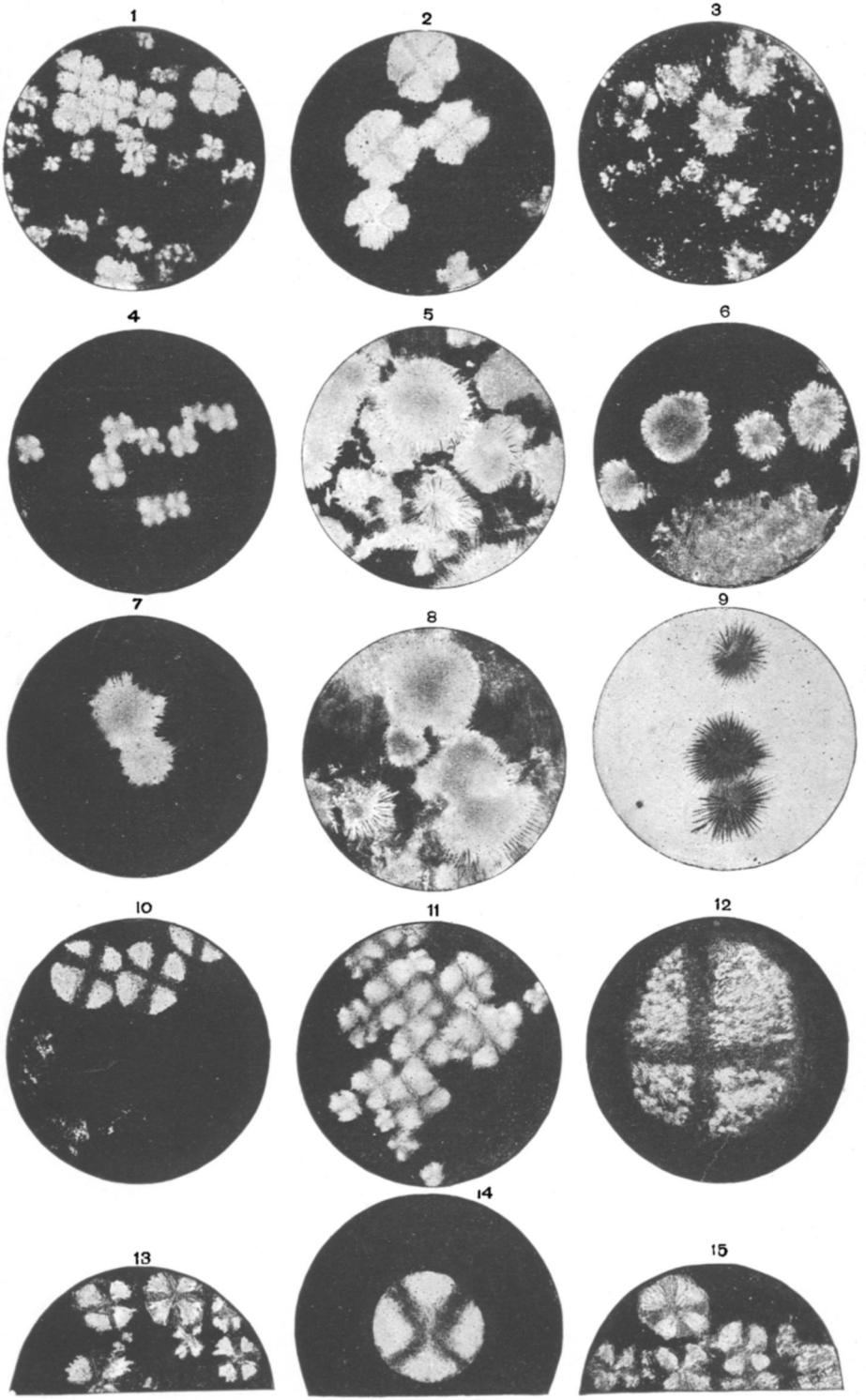
PLATE IV.

CRYSTALLINE FORMATIONS OF "OLEO" & BUTTER.



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B. Persh and Detmers, Photogs.

PLATE V.

CRYSTALLINE FORMATIONS OF "OLEO" & OLEOMARGINE. BOILED AND RAW.

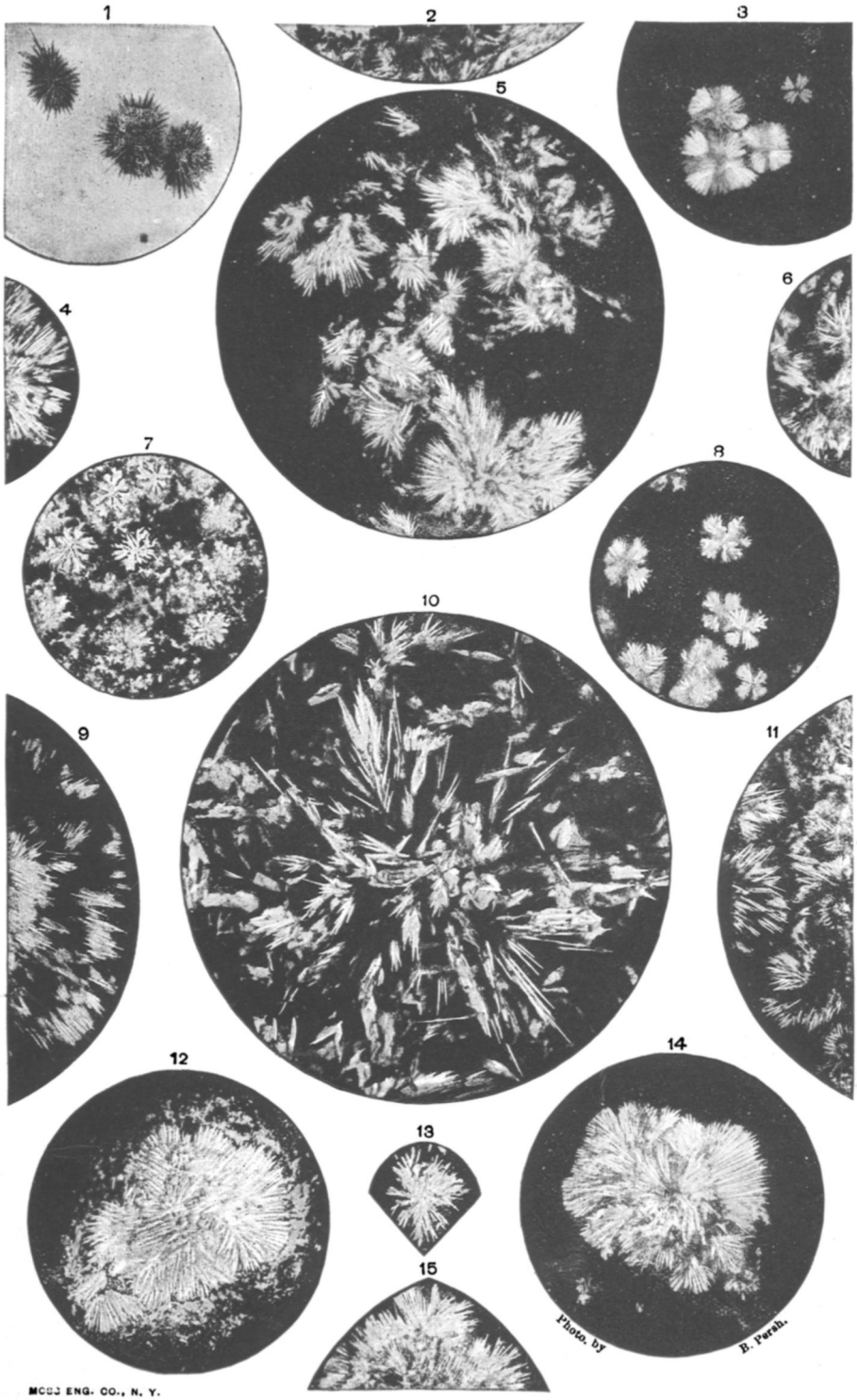

PLATE VI.

CRYSTALLINE FORMATIONS OF LARD AND OTHER FATS.

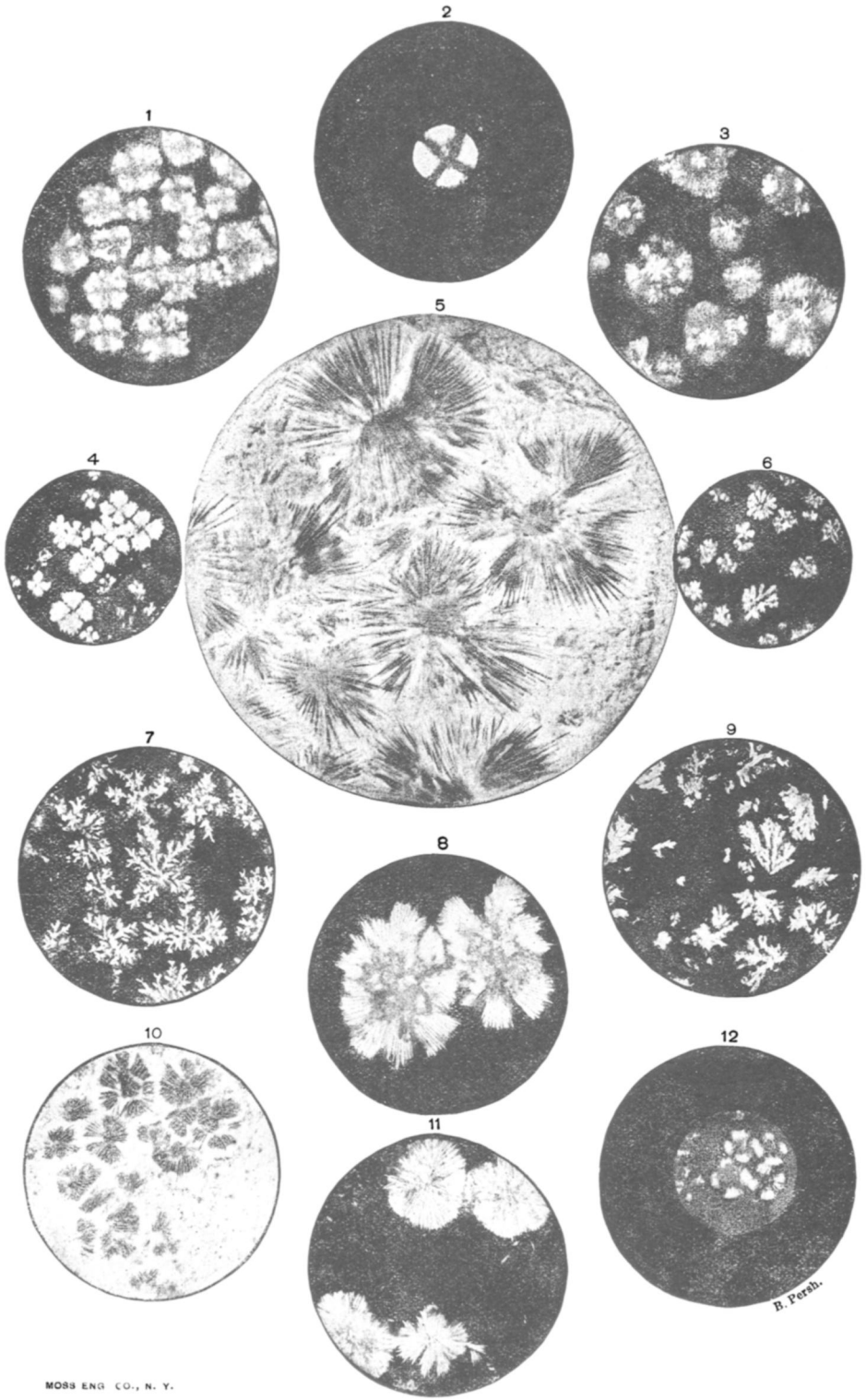

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PLATE VI.

CRYSTALLINE FORMATIONS OF VARIOUS FATS.

FIGS. 1 and 3. Respectively, primary and secondary crystals of loon fat. ×110.

FIGS. 2 and 8. Primary and secondary crystals of musk-rat fat. The primary (No. 2) are always very small, measuring about three one-thousandths of an inch in diameter.

FIG. 4. Crystals of oleo. ×140 diameters. (Extract of beef-fat.)

FIG. 5. Crystals of common lard by plain light. ×400.

FIG. 6. Secondary crystals of butter. ×110.

FIG. 7. Crystals of beef fat. ×140.

FIG. 9. Crystals of deer fat. ×140.

FIG. 10. Lard by plain light. ×140.

FIG. 11. Crystals of the solid fat of cottonseed oil. ×110.

FIG. 12. Neutral lard crystals, immature. ×140.